CLAIMS:

(amended January 11, 2000)

1. A support comprising oligo- or polynucleotides covalently linked at their 5'- or 3'-termini to at least one major surface of said support through bifunctional spacers and bifunctional linkers, characterized in that said oligo- or polynucleotides covalently linked at their 5'- or 3'-termini through bifunctional spacers and bifunctional linkers have a length of from 200 to 600 bp and said bifunctional linker is selected from the group of rigid homobifunctional linkers consisting of:

1,4-disubstituted benzene, 2,7-substituted fluorene, 2,6-substituted naphthalene, 2,6-substituted anthracene, 2,7-substituted phenanthrene, 4,4'-substituted biphenyl, 4,4'-substituted benzoin (C_6H_5-CO-CH(OH)-C_6H_5), 4,4'-substituted benzil (C_6H_5-CO-CO-C_6H_5), 4,4'-substituted benzophenone (C_6H_5-CO-C_6H_5), 4,4'-substituted diphenylmethane (C_6H_5-CH_2-C_6H_5), 4,4'-substituted stilbene (C_6H_5-CH=CH-C_6H_5), 1,3-substituted allene (CH_2=C=CH_2).

2. The support according to claim ~~1~~, characterized in that said oligo- or polynucleotide is RNA, DNA or PNA.

3. The support according to ~~either of claims 1 or 2~~ claim 1, characterized in that said support is made of glass or another material mainly consisting of silica.

4. The support according to ~~claims 1 to 3~~ claim 1, said bifunctional spacer having the following structure:

$(XO)_3$-Si-Y-Nu,

wherein

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X = C_1-C_3 alkyl,

Y = C_2-C_4 alkylene,

Nu = a nucleophilic group such as -NH_2, -NHR, with

R = -CH_2-CH_2-NH_2, -CH_2-CH_2-NH-CH_2-CH_2-NH_2, -CO-NH_2 or SH.

5. The support according to ~~at least one of claims 1 to 4~~ claim 1, wherein said spacer is Me_3OSi-CH_2-CH_2-CH_2-NH_2.

6. The support according to ~~at least one of claims 1 to 5~~ claim 1, characterized in that the functional groups of said homobifunctional linker comprise the following groups:

- aldehydes and ketones;

- isocyanates, isothiocyanates;

- carboxylic acids;

- carboxylic acid derivatives:

a) carboxylic acid esters, especially methyl, ethyl and activated esters, such as esters of p-nitrophenol or N-hydroxysuccinimide;

b) carboxylic acid chlorides (R-COCl);

c) carboxylic acid azides (R-CON_3);

d) mixed anhydrides with carbonic acid monoester (R-CO-O-COR').

7. The support according to ~~at least one of claims 1 to 6~~ claim 1, wherein said oligo- or polynucleotide has reacted with a functional group of said bi-functional linker to form a covalent bond through a primary amino group attached, synthetically or by a PCR reaction, on the 3'- or 5'-terminus through an alkane having a length of from 6 to 18 methylene groups or through a polyether with from 2 to 20 repeating units.

8. Use of a support according to ~~at least one of claims 1 to 7~~ claim 1 in a method for identifying and quantifying (assaying) polynucleotides by labeling the polynucleotides to be analyzed, followed by a hybridization reaction on the support.

9. A method for establishing transcription profiles in which:

- homologous regions of mRNA from a target species and at least one model species are selected;

- amplification primers allowing the amplification of nucleic acids having a length of from 200 to 600 bp, preferably from 200 to 400 bp, from the homologous regions of both the mRNA from said target species and the mRNA from said at least one model species are selected, the amplification primers having a maximum of 1 mismatch per 6 nucleic acids of the amplification primer;

- corresponding nucleic acids having a length of from 200 to 600 bp for said target species or said at least one model species are amplified by amplifications using the amplification primers, and the nucleic acids obtained are immobilized on at least one support;

- said at least one support is incubated with a DNA or RNA sample to be analyzed, and the quantity of bound DNA or RNA is determined.

10. A method for the preparation of a support according to ~~at least one of~~ claim 1 ~~claims 1 to 7~~, wherein:

- said spacer in a polar aprotic solvent is applied to the major surface of the support, followed by removing any excess (unreacted) spacer;

- said linker is dissolved in an anhydrous polar aprotic solvent and reacted with the spacer bound to said major surface;

- the oligo- or polynucleotide modified with an amino group at its 5'- or 3'-terminus through an alkylene group is taken up in a buffer and incubated on said support for binding the oligo- or polynucleotide to a free group of the bifunctional linker, optionally followed by removing any excess free groups of the bifunctional linker; and

- the oligo- or polynucleotide bound to the support is denatured.

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